## THE DROUGHT AND HEAT IN THE VICINITY OF ST. LOUIS, MO., DURING THE SUMMER OF 1913.

By MONTROSE W. HAYES, District Forecaster.

By far the hottest and driest summer in St. Louis was the one of 1901. In that year the mean temperature for the period extending from June 1 to August 31 was 82.7°. The five summers that follow, in point of heat, are as follows: 1913, 80.7°; 1881, 80.6°; 1887, 80°; 1874, 79.3°; and 1899, 79.1°.

The dry weather in 1901 did not begin until June 10. There had been some copious showers just before that date, but beginning with the 10th and stretching into October there was a period of phenomenal drought. In the 113 days from June 10 to September 30, inclusive, the total precipitation was 3.25 inches. There were only 14 days with 0.01 inch or more of rain, and there were four protracted periods in which there was not a measurable amount of rain, one of 11 days, 2 of 17 days each, and 1 of 29 days.

The summer of 1881 was notably hot and dry, and a comparison of its mean temperature and total precipitation with similar elements for the summer of 1913 indicates that the two seasons were almost alike. However, there was one marked difference that must have had a material effect upon the growth and development of vegetation. In 1881 the dry, hot weather was not pronounced until in July, and that month and August were excessively droughty. In 1913 the rainfall was very deficient after the heavy precipitation of the first 10 days of April; then the July and August rainfall of this year, which the records show not to have been especially light in St. Louis, was phenomenally local. Sudden and heavy showers in the city in several cases amounted to mere sprinkles in the suburbs and surrounding country, where moisture was most needed. It is quite evident, therefore, that the early beginning of the 1913 drought must have affected crop growth more harmfully than the drought of 1881, which really did not begin until July. And it is probable that some crops were in 1913 injured to a greater extent than in 1901, as in the latter year the drought did not begin until June 10. However, the much hotter weather in 1901 may have overcome the advantage that the rains of the earlier part of the season would seem to have given.

The temperatures were not as high in 1913 as in 1901 and in 1881, but there was a long stretch of hot weather, beginning the 1st of June and continuing throughout the summer, except for a few short periods of relief. Neither in 1901 nor in 1881 did the weather become hot as early in the season as it did in 1913. From June 1 to August 31 there were, in 1901, 39 days with a maximum above 95°; in 1881 there were 33 days; and in 1913 there were 25 days. The highest temperature in 1901 was 107°, which is the absolute maximum for the station; in 1881 it was 105°; and in 1913 it was 102°.

In the vicinity of St. Louis vegetables and fruits, except the very early ones, gave a reduced, and in many instances an inferior yield. Some wells failed, and some of the coal mines across the river had to haul water or shut down.

Popularly, the summer of 1913 is considered the hottest and driest since 1901, which established a record for excessive heat and deficient precipitation, and judging it solely by its effects upon the crops and the water supply it very likely was.

There is inclosed herewith a copy of the August report of the secretary of the Missouri State Board of Agriculture, which may be of interest.

MISSOURI CROP REPORT.

COLUMBIA, MO., *September 6, 1913.*

August was an unfavorable month for Missouri farmers, yet there will be neither want nor famine. In the face of discouragements, made all the more noticeable because of the failure of the early season promise of a bumper crop, there prevails an optimism and determination most commendable. This feeling is reflected in most of the reports from correspondents, notwithstanding that in every county of the State there was a falling off in crop conditions during August. At Columbia the rainfall for the month was but 0.77 of an inch, as compared with 4.91 inches last year, 1.86 inches in 1911, 1.67 inches in 1901, and 3.04 inches as normal for August. The highest temperature recorded was 105° on the 7th but on 11 days during the month it was 100° or more.

*Corn.*—Reports from the 114 counties of the State place the condition of corn at 41.8, a loss of 29 points for the month. One year ago it was 86.8, and the total State yield for that year was 243,000,000 bushels. Condition of corn on September 1, as reported by crop division sections, shows: Northeast, 43; northwest, 45; central, 41; southwest, 34; southeast, 46. Even in the northwest section, where heat and drought did comparatively little damage earlier in the season, the crop suffered greatly during August. There is much good corn in river bottoms and on low land. On the other hand there are upland fields that will hardly make good fodder. The crop is very poor in the counties south of the Missouri River and bordering on or near Kansas. Benton and the counties to the south have also been hard hit. North of the Missouri River the greatest lack of rain has been in Audrain and other northeast counties. It is estimated that 20 per cent of the corn crop of the State has been cut and that 40 per cent more will go into shock. More silos than ever before will also be filled.

*Wheat.*—Dry weather has greatly interfered with preparations for sowing wheat. Correspondents report only 30 per cent of the ground plowed. Estimates for the new crop place it at 89 per cent of the acreage harvested this year. Without rain soon this will be further reduced, but sufficient rainfall and a favorable fall for seeding might increase the acreage.

*Other crops.*—Additional information on the oat crop indicates a State yield of 20.5 bushels on that part of the crop thrashed. Yield of timothy seed will be very light and acreage only 41 per cent of normal. The clover-seed crop promises well, but it is too early to give figures. Yield of rye is placed at 14.2 bushels, buckwheat 10.3, barley 18, flax 6, but final figures may differ. Condition of cotton is 67, tobacco 52, and cowpeas 53.

*Live stock.*—Water for live stock is now the most serious matter with which the average farmer is having to contend, 88 per cent of the correspondents reporting a shortage. Ponds have dried up and many springs and wells that had never failed are dry or nearly so. Pastures are brown and bare, the condition for the State being 25. It is estimated that 30 per cent of the farmers are now feeding new corn. However, owing to a general shortage of live stock, there may be no extraordinary demand for feed. Number of hogs on feed as compared with one year ago is placed at 58 per cent; number of spring pigs on farms, 75 per cent; number of sows for fall farrow, 72 per cent; number of cattle on feed, 54 per cent; number of stock cattle on farms, 73 per cent. It is estimated that 24 per cent of the cattle have been disposed of owing to drought. No doubt, much of this was "star boarder" stuff that needed to go. With good prices prevailing and with intelligent weeding out there has been no sacrifice or loss from this source.

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## A COMPARISON OF THE DROUGHT OF 1913 AND OTHER YEARS IN THE VICINITY OF SPRINGFIELD, MO.

By JOHN S. HAZEN, Local Forecaster.

This place has a normal precipitation above the average for the eastern half of the United States, and has therefore been considered practically immune from serious droughts. The average precipitation for Springfield, computed for a period of 23 years preceding the past three dry years, is 44.50 inches, but the unprecedented drought of the consecutive years 1910, 1911, and 1912 have reduced the actual average to less than 43 inches for a 26-year period. Annual deficiencies during the past three years of 7.99, 7.77, and 11.38 inches, respectively, in addition to a deficiency of about 13 inches during the crop-growing season of 1913, makes a total de-